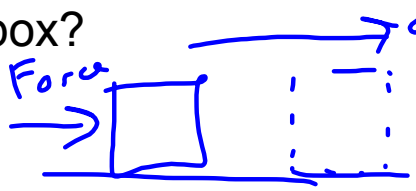
1) A person pushes a box with a force of 25 N for a displacement of 2.84 m. What is the work done on the box?



$W = Fd$

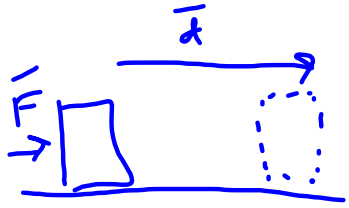
$F = 25N$

$d = 2.84m$

$= (25N)(2.84m)$

$= 71J$

2) A person pushes a box a displacement of 5.74 m and does 49.8 J of work. How much force was applied to the box?



$W = Fd$

$F = \frac{W}{d}$

$= \frac{49.8J}{5.74m}$

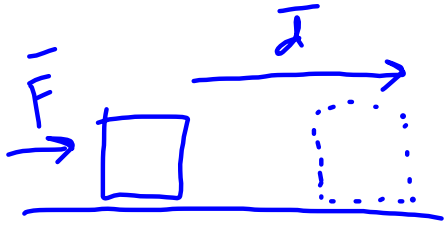
$= 8.68N$

$W = 49.8J$

$d = 5.74m$

$F = ?$

3) A person pushes a box with 33 N of force and does 88 J of work. What is the displacement of the box?



$W = Fd$

$d = \frac{W}{F}$

$= \frac{88J}{33N}$

$= 2.67m$

$F = 33N$

$W = 88J$

$d = ?$

Energy Conservation:

- Mechanical
- chemical
- Electrical
- Nuclear
- Thermal
- Light
- Sound

} 7 "Types"

- In almost all, there are potential and kinetic parts

- Mechanical:
  - Kinetic → $KE = \frac{1}{2}mv^2$
    - v → velocity
    - m → mass
  - Potential
    - Spring
    - Gravitational → $GPE = mgh$
      - m → mass
      - g → acceleration due to gravity
      - h → height

8.2 Notes:

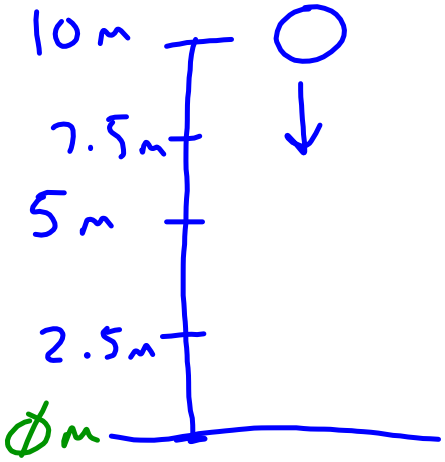
6. 

$m = 1.5\ kg$
$h = 8\ m$ $\quad g = 9.8\ m/s^2$
$v = 14\ m/s$

$$GPE = mgh$$
$$= (1.5\ kg)(9.8\ m/s^2)(8\ m)$$
$$= 117.6\ J$$

$$KE = \frac{1}{2}mv^2$$
$$= \frac{1}{2}(1.5\ kg)(14\ m/s)^2$$
$$= 147\ J$$

- Athletic Ball Drop:



GPE	KE	Total
100%	0%	100%
75%	25%	100%
50%	50%	100%
25%	75%	100%
0%	100%	100%